SPEC® CFP2006 Result
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Hewlett Packard Enterprise
(Test Sponsor: HPE)

ProLiant DL360 Gen10
(3.00 GHz, Intel Xeon Gold 6136)

$SPECfp^{®}2006 =$ **Not Run**

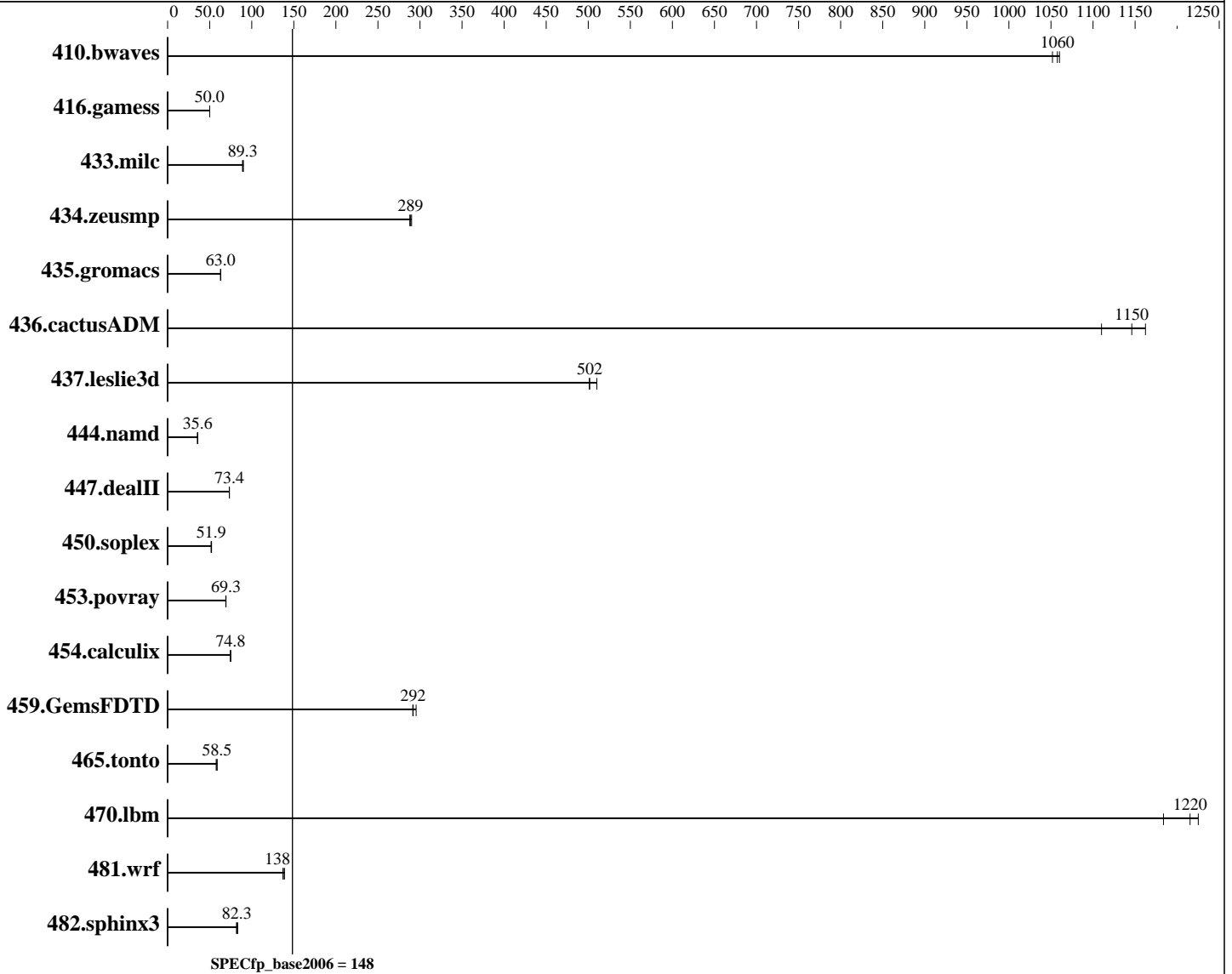$SPECfp\_base2006 =$ **148**

CPU2006 license: 3	**Test date:** Oct-2017
Test sponsor: HPE	**Hardware Availability:** Oct-2017
Tested by: HPE	**Software Availability:** Apr-2017

410.bwaves — 1060
416.gamess — 50.0
433.milc — 89.3
434.zeusmp — 289
435.gromacs — 63.0
436.cactusADM — 1150
437.leslie3d — 502
444.namd — 35.6
447.dealII — 73.4
450.soplex — 51.9
453.povray — 69.3
454.calculix — 74.8
459.GemsFDTD — 292
465.tonto — 58.5
470.lbm — 1220
481.wrf — 138
482.sphinx3 — 82.3

SPECfp_base2006 = 148

Hardware
CPU Name:	Intel Xeon Gold 6136
CPU Characteristics:	Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	24 cores, 2 chips, 12 cores/chip
CPU(s) orderable:	1, 2 chip(s)
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core

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Software
Operating System:	Red Hat Enterprise Linux Server release 7.3 (Maipo) Kernel 3.10.0-514.el7.x86_64
Compiler:	C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.3.191 of Intel Fortran Compiler for Linux
Auto Parallel:	Yes
File System:	xfs

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L3 Cache:	24.75 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	64-bit
Memory:	192 GB (24 x 8 GB 2Rx8 PC4-2666V-R)	Peak Pointers:	Not Applicable
Disk Subsystem:	1 x 480 GB SATA SSD, RAID 0	Other Software:	None
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	12.8	1060	12.9	1050	**12.9**	**1060**						
416.gamess	**391**	**50.0**	391	50.0	391	50.1						
433.milc	**103**	**89.3**	102	90.1	103	89.2						
434.zeusmp	**31.5**	**289**	31.6	288	31.4	290						
435.gromacs	113	63.1	113	63.0	**113**	**63.0**						
436.cactusADM	**10.4**	**1150**	10.8	1110	10.3	1160						
437.leslie3d	**18.7**	**502**	18.8	501	18.4	510						
444.namd	**225**	**35.6**	225	35.7	225	35.6						
447.dealII	**156**	**73.4**	156	73.4	156	73.3						
450.soplex	161	51.8	**161**	**51.9**	160	52.2						
453.povray	**76.8**	**69.3**	76.6	69.4	76.9	69.1						
454.calculix	110	74.8	110	74.8	**110**	**74.8**						
459.GemsFDTD	35.9	295	**36.3**	**292**	36.4	291						
465.tonto	171	57.7	**168**	**58.5**	167	58.9						
470.lbm	11.6	1180	**11.3**	**1220**	11.2	1230						
481.wrf	80.4	139	**81.2**	**138**	81.4	137						
482.sphinx3	**237**	**82.3**	234	83.3	238	81.9						

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
Transparent Huge Pages enabled by default
Filesystem page cache cleared with:
 shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run
irqbalance disabled with "systemctl stop irqbalance"
tuned profile set wtih "tuned-adm profile throughput-performance"
```

Platform Notes

```
BIOS Configuration:
 Intel Hyperthreading set to Disabled
 Thermal Configuration set to Maximum Cooling
 Memory Patrol Scrubbing set to Disabled
 LLC Prefetcher set to Enabled
```

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Hardware Availability: Oct-2017
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Platform Notes (Continued)

```
   LLC Dead Line Allocation set to Disabled
  Workload Pofile set to General Peak Frequency Compute
   Energy/Performance Bias set to Maximum Performance
   Uncore Frequency Scaling set to Auto
  Workload Pofile set to Custom
   NUMA Group Size Optimization set to Flat

 Sysinfo program /home/specuser/cpu2006/config/sysinfo.rev6993
 Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
 running on dl360gen10rhel73 Thu Oct 12 12:41:44 2017

 This section contains SUT (System Under Test) info as seen by
 some common utilities.  To remove or add to this section, see:
   http://www.spec.org/cpu2006/Docs/config.html#sysinfo

 From /proc/cpuinfo
    model name : Intel(R) Xeon(R) Gold 6136 CPU @ 3.00GHz
       2 "physical id"s (chips)
       24 "processors"
    cores, siblings (Caution: counting these is hw and system dependent.  The
    following excerpts from /proc/cpuinfo might not be reliable.  Use with
    caution.)
       cpu cores : 12
       siblings  : 12
       physical 0: cores 0 1 2 3 8 9 10 11 18 19 24 27
       physical 1: cores 0 1 2 3 8 9 10 11 18 19 24 27
    cache size : 25344 KB

 From /proc/meminfo
    MemTotal:       197573264 kB
    HugePages_Total:        0
    Hugepagesize:       2048 kB

 From /etc/*release* /etc/*version*
    os-release:
       NAME="Red Hat Enterprise Linux Server"
       VERSION="7.3 (Maipo)"
       ID="rhel"
       ID_LIKE="fedora"
       VERSION_ID="7.3"
       PRETTY_NAME="Red Hat Enterprise Linux Server 7.3 (Maipo)"
       ANSI_COLOR="0;31"
       CPE_NAME="cpe:/o:redhat:enterprise_linux:7.3:GA:server"
    redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
    system-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:7.3:ga:server

 uname -a:
    Linux dl360gen10rhel73 3.10.0-514.el7.x86_64 #1 SMP Wed Oct 19 11:24:13 EDT
    2016 x86_64 x86_64 x86_64 GNU/Linux

 run-level 3 Oct 12 12:04
```

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Platform Notes (Continued)

```
   SPEC is set to: /home/specuser/cpu2006
      Filesystem              Type   Size   Used Avail Use% Mounted on
      /dev/mapper/rhel-home xfs   392G   20G   373G   5% /home
   Additional information from dmidecode:

      Warning: Use caution when you interpret this section. The 'dmidecode' program
      reads system data which is "intended to allow hardware to be accurately
      determined", but the intent may not be met, as there are frequent changes to
      hardware, firmware, and the "DMTF SMBIOS" standard.

    BIOS HPE U32 09/29/2017
    Memory:
      24x UNKNOWN NOT AVAILABLE 8 GB 2 rank 2666 MHz

   (End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=core,compact"
LD_LIBRARY_PATH = "/home/specuser/cpu2006/lib/ia32:/home/specuser/cpu2006/lib/intel64"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/specuser/cpu2006/sh10.2"
OMP_NUM_THREADS = "24"

 Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
 memory using Redhat Enterprise Linux 7.2
```

Base Compiler Invocation

C benchmarks:
    `icc -m64`

C++ benchmarks:
    `icpc -m64`

Fortran benchmarks:
    `ifort -m64`

Benchmarks using both Fortran and C:
    `icc -m64 ifort -m64`

Base Portability Flags

    410.bwaves: `-DSPEC_CPU_LP64`
    416.gamess: `-DSPEC_CPU_LP64`

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Base Portability Flags (Continued)

```
    433.milc: -DSPEC_CPU_LP64
  434.zeusmp: -DSPEC_CPU_LP64
  435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
  437.leslie3d: -DSPEC_CPU_LP64
    444.namd: -DSPEC_CPU_LP64
   447.dealII: -DSPEC_CPU_LP64
   450.soplex: -DSPEC_CPU_LP64
   453.povray: -DSPEC_CPU_LP64
  454.calculix: -DSPEC_CPU_LP64 -nofor_main
 459.GemsFDTD: -DSPEC_CPU_LP64
    465.tonto: -DSPEC_CPU_LP64
     470.lbm: -DSPEC_CPU_LP64
     481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
  482.sphinx3: -DSPEC_CPU_LP64
```

Base Optimization Flags

C benchmarks:

    `-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch`

C++ benchmarks:

    `-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch`

Fortran benchmarks:

    `-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch`

Benchmarks using both Fortran and C:

    `-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.html
http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revD.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.xml
http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revD.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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